(12) UK Patent Application (19) GB (11) 2 277 866 (13) A

(43) Date of A Publication 16.11.1994

(21) Application No 9409283.0

(22) Date of Filing 10.05.1994

(30) Priority Data
(31) 9301629 (32) 12.05.1993 (33) SE

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(51) INT CL[5]
A61F 13/62 13/64

(52) UK CL (Edition M)
A3V V9B5C

(56) Documents Cited
US 4991234 A

(58) Field of Search
UK CL (Edition M) A3V V9B5A V9B5C V9B5X
INT CL[5] A41F 9/00 9/02 , A61F 5/44 13/00 13/62 13/64 13/66 13/74 13/76
Online databases:WPI,CLAIMS

(54) **Belt for use with an absorbent garment**

(57) A belt (1) for use with an absorbent garment (2), generally for persons suffering from incontinence, has two laterally spaced edges (3, 4) defining an area (5) for releasable attachment of hook element strips (6, 6', 6") of hook and loop type fastening means. The belt also has at least one portion (7), extending externally along a minor proportion of the length of the belt and across the major proportion of the width (z) of the belt, said defined portion(s) (7) being a nonattachment zone(s) to which said hook elements cannot releasably attach.

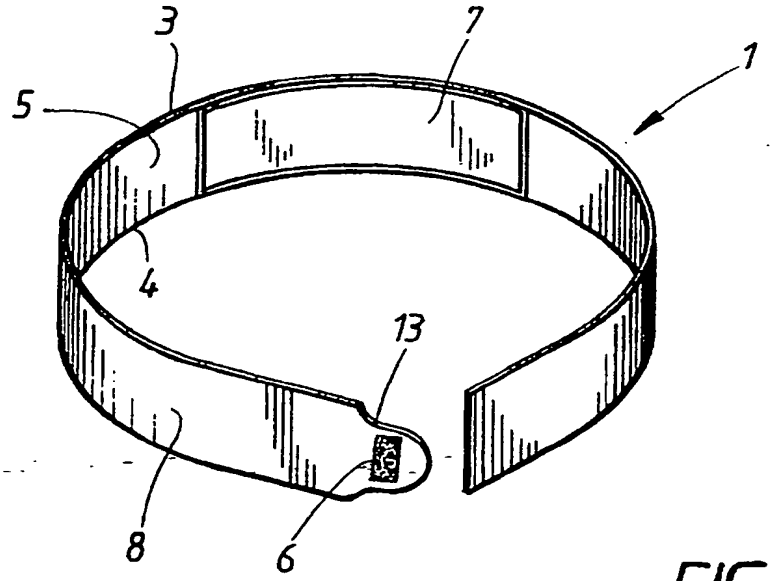

FIG. 1

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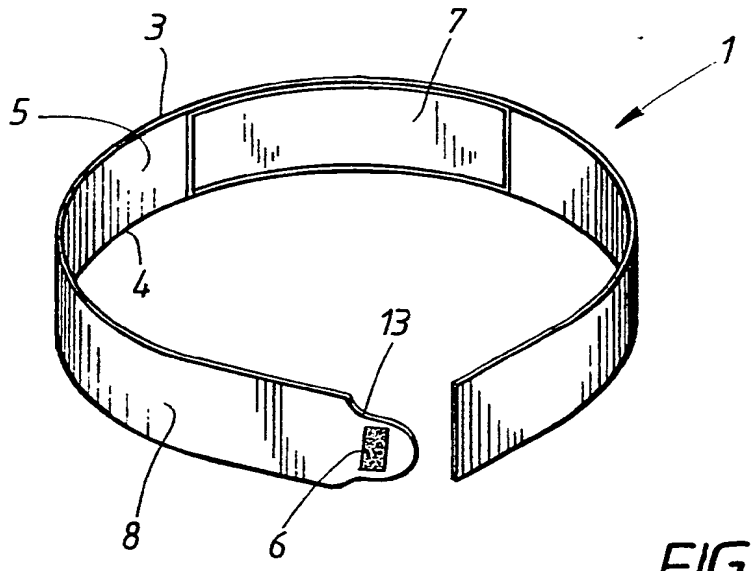

FIG. 1

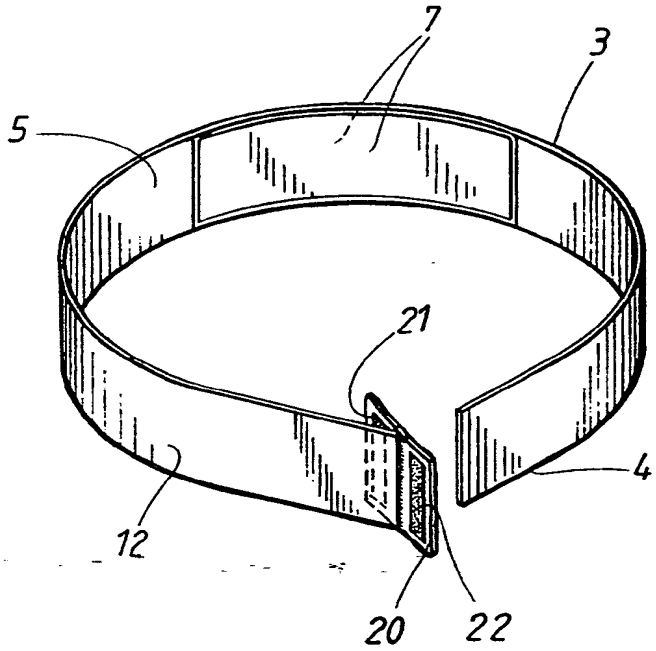

FIG. 2

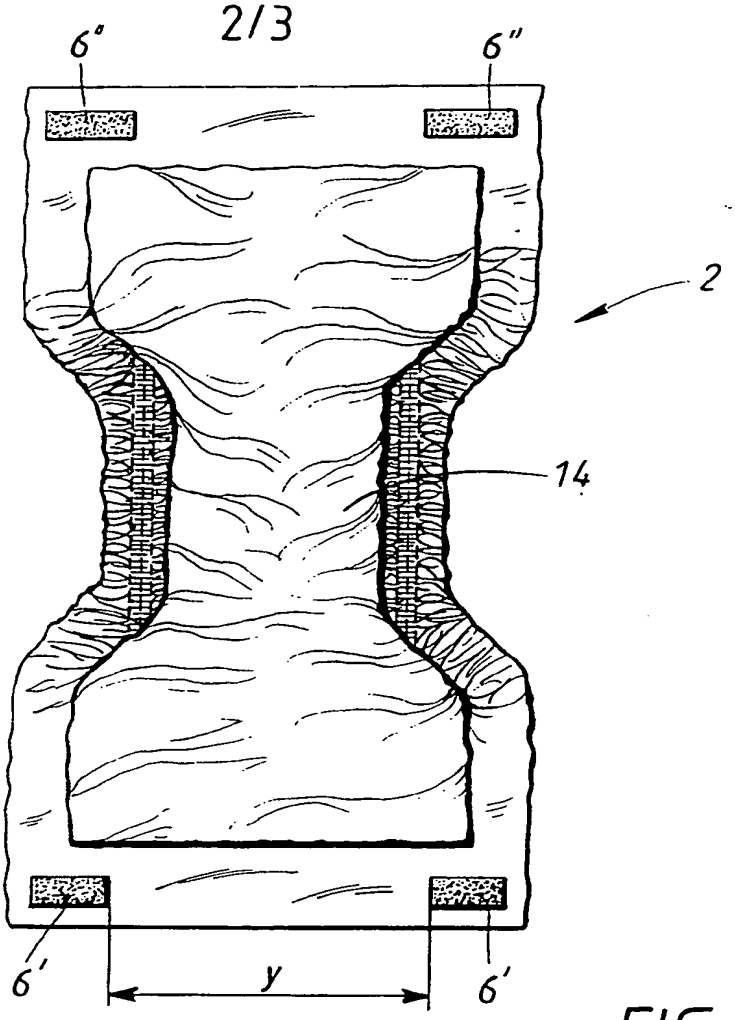

FIG.3

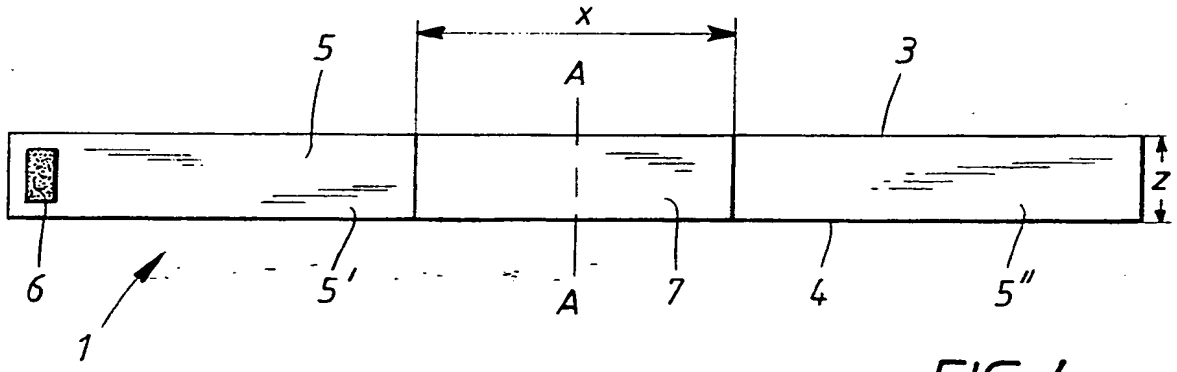

FIG.4

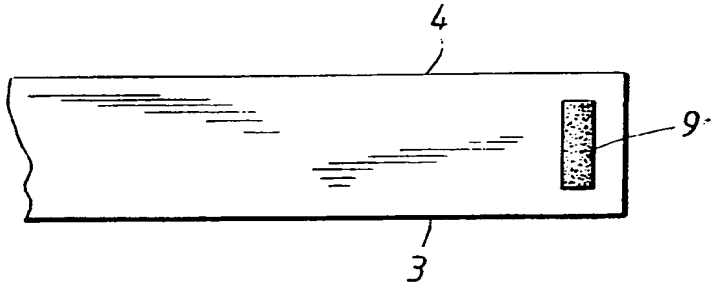

FIG. 6A

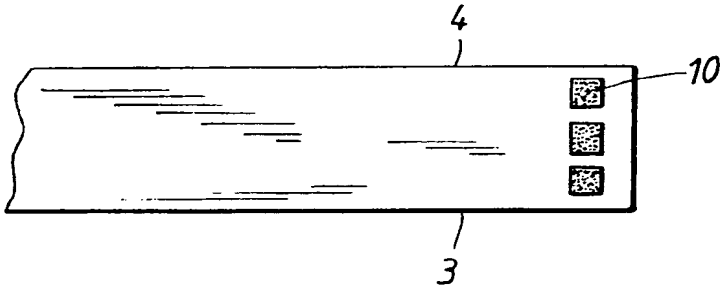

FIG. 6B

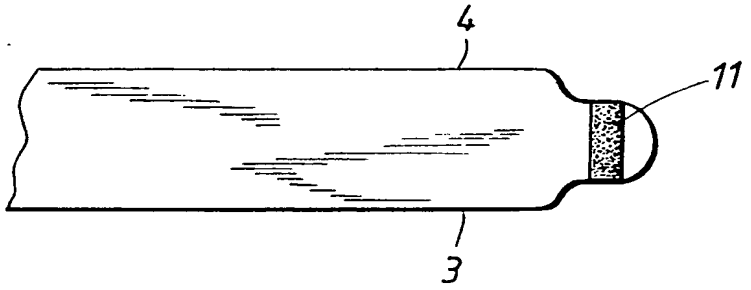

FIG. 6C

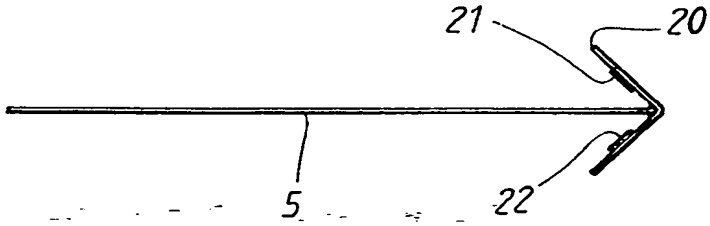

FIG. 5

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Title

ATTACHMENT BELT FOR ABSORBENT MATERIAL GARMENTS

Field of the Invention

The invention relates to a belt for use with absorbent garments worn to assist in the collection of bodily discharges particularly for persons suffering from incontinence and, more particularly, the invention relates to a belt for use with an absorbent garment, said belt having two laterally spaced edges defining an area of material therebetween for releasable attachment of hook element strips of hook and loop type fastening means.

Background to the Invention

Absorbent garments of the above mentioned type are well known in the art.

Two general types can primarily be identified, firstly of the type having a belt attached integrally with the absorbent garment portion and secondly of the type having a separate belt, to which an absorbent garment portion is attached by some means of releasable attachment such as hook and loop (also called touch and close) type fastening means, for instance such as sold under the name "VELCRO". The belt of the separate type can be a disposable belt for limited use requiring no particular cleaning, or a more permanent type which may be washed several times before its effectiveness or appearance warrants a change to a new belt.

Published application WO-A-91/08725 discloses an example of both these general types in conjunction with an absorbent garment or "chassis" as it is sometimes referred to.

Another example of a reusable belt is known for example from GB-A-2 242 612, whereby the belt is passed through slits in the absorbent lining and presents a hook and loop type mechanical fastener having both a hook part and a loop part of said fastener at either end of the belt.

One of the problems recognised with such garments is the achieving maximum comfort for the user by correct fitting of the garment. Incorrect fitting will result in sore, cut and/or painful areas for the user. This is particularly the case if the users are unable to assist themselves or otherwise unable to communicate the fact to the assistant personnel.

A solution to this problem is proposed in the aforementioned WO-A-91/08725, whereby a separate belt worn by the user is provided with visual markings or targeting indicia whereby the centreline of the belt becomes more apparent and/or provides a location site for attachment for the hook element strips provided on the chassis portion.

Where the problem of incontinence is involved, it will be appreciated that persons suffering from this problem are often old and have physical handicaps of various types. As a consequence, they often require the assistance of personnel for fitting the garments. Due to the fact that many users of such belts are also bed-ridden and often heavy, the assistant personnel regularly have difficulties in fitting and attaching the garment to the wearer in a comfortable manner since dexterity (for positioning) and strength (for manoeuvring the wearer) of the assistant are required simultaneously.

Moreover, the desired attachment points for the garment (i.e. of the chassis to a separate belt) such as the indicia disclosed in the aforementioned WO-A-91/08725 are

often not visible or easily visible, such as in the case of a bed-ridden user where attachment of the chassis will occur underneath or behind the user.

Thus there is a need for a solution which allows easy and correct fitting of the garment, particularly in the case of bed-ridden persons.

Further objects of the invention will become apparent to the reader in the course of reading the following description of certain preferred embodiments.

Summary of the Invention

The aforementioned problems relating to fitting and comfort when wearing absorbent garments of the aforementioned type are solved by the features of the belt according to claim 1.

Preferred features of the belt are defined in the dependent claims.

As a consequence of the use of the non-attachment zone defined in claim 1, the fitting of the hook element strips of a chassis to be attached is facilitated without the requirement, for instance, of being able to see the attachment zones, since the person fitting the absorbent garment to the belt is only able to attach the hook element strips of the chassis in substantially the correct locations, which lie just outside either edge of the zone of non-attachment.

It should be noted that, whilst the term absorbent garment has been used particularly in conjunction with incontinence, and particularly adult incontinence, the invention is not limited to this particular use or any particular size

or type of absorbent garment implied thereby and it is clear for the skilled man that such belts could be used with baby's or children's nappies (diapers) for example, merely by adapting the dimensions appropriately.

Brief Description of the Drawings

The invention will now be explained in more detail with reference to certain non-limiting embodiments and with reference to the accompanying drawings, in which

Fig. 1 depicts a belt in accordance with the invention whereby, for purposes of clarity, the belt is shown looped in the opposite manner to that obtained upon wearing;

Fig. 2 depicts a belt according to the invention wherein the belt is of the reversible type, capable of being used either way round;

Fig. 3 shows an absorbent garment in the form of a chassis, adapted for fitting to the belt of the invention;

Fig. 4 shows a belt according to the invention laid out flat;

Fig. 5 shows a plan view of a reversible belt similar to that in Fig.2, and

Fig. 6 shows three possible embodiments, in Figs 6(A), 6(B) and 6(C) of elongate hook element strips applied to the belt of the present invention.

Detailed description of preferred embodiments

Fig. 1 shows a belt generally denoted 1 which is made of flexible material such that it can be wrapped around a user's waist. The belt in Fig. 1 is shown, for reasons of clarity, wrapped around an imaginary centre point in a manner opposite to that normally used when fitted to a user. Thus the inside of the belt 8 is here shown as if it were on the outside.

The belt is substantially rectangular in shape comprising two laterally spaced longitudinal edges 3 and 4 separated by a distance z (see Fig. 4). At one end, the belt is foreseen with an end portion 13 here shown as having a reduced width, on which end portion is securely affixed a flexible strip 6 having hook elements. This hook element strip is of the type forming one half of the joining portions of a hook and loop type fastening means. The loop part of the joint in the embodiment shown is formed by the belt material itself.

The outside of the belt 5 (depicted in Fig. 1 as the inside) serves as an area of releasable attachment, partly for the strip 6 located at one end of the belt and also for similar strips 6' and 6'' of a chassis 2 having absorbent material 14 therein (see Fig. 2).

On the outside surface 5 of the belt 1 there is a defined portion 7, formed by a strip of suitable material on the outside surface 5 of the belt, to which the hook element strips 6' and 6'' cannot releasably attach. This area 7 thus forms a zone of non-attachment and as depicted has its centreline substantially common with the centreline A-A of the main belt portion. The zone 7 extends either entirely across the width of the belt or at least across a major proportion thereof. By "major proportion" is hereby meant

more than 50%, although the actual extent across the width of the belt will generally be such that it would be impossible for the strips 6′ and 6′′ to be able to attach themselves to sufficient surface 5 above or below the longer edges of the area 7. The non-attachment zone 7 also extends along a minor proportion of the belt, i.e. along less than 50% of the total belt length. Most normal belts for use in this field are no longer than 150 cm such that the maximum length of zone 7 would normally be no more than about 70 cm, although as little as 5 cm is possible depending on the length of the belt and the size of the garment 2 to be attached. Preferably however, the length of zone 7 lies between 25 and 40 cm in the case of adult incontinence applications.

Whilst the zone 7 is generally formed by adding a piece of material (to which hook elements will not attach, e.g. a plastic material) to an existing belt of material suitable for releasable attachment of hook elements, it is clearly also feasible that the main body of the belt may be formed entirely, or to a large extent, by the material of the non-attachment zone. In order to provide attachment zones as claimed it is then necessary to attach two lengths or strips 5′ and 5′′ of belt material suitable for releasable attachment thereto of hook elements, such that the inner margins of said strips define the start and end of the zone of non-attachment.

The manner of fitting a chassis 2 to the belt 1 will now be described. Firstly the belt is passed around the wearer's waist and the hook element strip 6 is pressed lightly onto the releasable attachment surface 5 to fasten it in place. The zone 7 will be facing outwardly and positioned approximately with its centreline in line with the wearer's spinal column (i.e. approximately central with regard to the wearer's back). The chassis portion is then attached to the

outside of the belt behind the wearer's back by attaching the two strips 6' (or alternatively strips 6'') to the belt surface 5.

The distance y between the inner margins of the strips 6' or 6'' is greater than the length x of the zone 7. Thus the two strips 6' or 6'' can easily be located on to the correct areas of the belt, since these are the areas where both strips 6' (or 6'') attach. The other end of the chassis (i.e. the end not yet attached) is then passed through the legs of the wearer and attached on the front of the belt.

The result for the patient is that the chassis is positionally correctly fitted which means not only that the chassis does not exert a sideways pulling force on the legs or crotch due to incorrect placement, but also that no twisting of the belt is induced, which itself can be a cause of cutting and soreness.

Whilst less preferable, the chassis may have the strips 6' or 6'' located on an elasticated or extendable portion. Fitment of the chassis correctly then requires merely extending the strips 6' away from each other until they have a separation y greater than the length x of the zone 7.

A further embodiment of the invention is shown in Fig. 2 and Fig. 5 which show a reversible belt, i.e. a belt which can be used either way round. In accordance with the invention the belt is thus provided with corresponding zones 5 and 12 for releasable attachment on either side and with a non-attachment zone 7 on either side.

It will be understood that the use of a reversible belt in its own right, even without any zone 7, presents signifi-

cant advantages over prior known belts having one-sided use only, since there is no requirement when fitting the belt to check which side of the belt is the outside. This is of significant advantage in the dark or for wearers who are partially or totally blind for example.

At one end of the belt there is attached (by welding or other means) an extra material piece 20, which is made of a flexible material and which has attached thereto two strips 21 and 22 of hook elements. Depending on which way round the belt is worn, either one or the other hook element strip 21 or 22 can be used for fastening the belt.

Generally, the strips 7 on either side of the belt will be the same size, although it is possible that they could be of different size. This might for example be useful where it is desired to have a smaller, less bulky and thus less visible chassis during the day and a bulkier one at night, whereby the distance apart "y" of the strips 6' for example might be different.

Clearly advantageous with the use of such belts of the single sided type is where the inner surface material of the belt is made absorbent, thus absorbing perspiration for example. This then allows freedom of choice of the material for the outside of the belt in the releasable attachment area 5.

A woven material is normally used for both sides of the belt, due to its releasable attachability characteristics for hook element strips and also due to its washability.

However it is now possible even to use non-woven, cheaper materials for the outside of the belt due to the development of a hook element strip having releasable attachability to non-woven materials. Thus, since non-woven materials

are not easily washable without causing wrinkles for example, it is a possibility to use an absorbent material, possibly also a non-woven material, for the inner surface of such a belt if the belt is to be a disposable one (i.e. not designed for re-use after washing). In this way it is possible to achieve a belt which is cheap and disposable after limited use with a small number of chassis.

In particular, when using non-woven materials for the releasable attachment surface of the belt it is possible to achieve particularly favourable peel strength and shear strength combinations, which give a peel strength of 0.1 - 2.0 Ncm^{-1}, preferably down to as low as 0.2 - 0.8 Ncm^{-1}, and a shear strength greater than 1 Ncm^{-2}, preferably greater than 15 Ncm^{-2} and normally greater than 20 Ncm^{-2}.

Since comfort of the wearer is a particularly important consideration in this field and in particular to fitting of the belt, it has been shown advantageous to adopt a particular placement of the hook element strips for fastening the belt together. Thus in order to reduce, to a great extent the possibility of the hook element strips contacting the wearer's waist due to incorrect fitting of the belt, or for the case where the waist of the user increases dimension, the hook element strip or strips are made of such a length and width and are positioned with such an orientation so as to avoid this.

As can be seen from Fig. 6, showing three possible strip embodiments 9, 10, and 11 the distance between the outer edges of the strip(s) is placed at a distance from each edge 3, 4 of the belt. In this way, when the belt is fitted, if slightly angled or not correctly overlapped, the hook elements will not project beyond the edge of the belt and thus will not contact the wearer's body.

As can be seen, the strips are generally elongate, or in the case of a series of strips 10 as in Fig. 6(B), the series of strips is elongate. Preferably a ratio of greater than 2:1 elongation is used and even more preferably an elongation ratio of over 3:1. Thus to achieve the aforementioned advantages it is preferable to lay the strips with their larger dimension across the belt width, as depicted, and to give the strips a dimension such that the larger dimension has a length of between 25 % and 75 % of the width (z) of the main area (5) of the belt. By width of the belt, is hereby meant the width of the belt at the zone where the strip 9, 10, 11 will attach. Thus in the embodiment of Fig. 6(C), although the strip 11 extends entirely across the reduced portion of the belt, the strip still lies within the stated range. In particular it has been found particularly advantageous to use a strip with a length which is less than 60%. Due to the shear strength which can be achieved by the use of non-woven materials as the belt attachment surface, it is also easy to acquire adequate shear strength with only minimal attachment area.

Whilst particular embodiments of the invention have been described above, it is to be understood that these are in no way limiting for the scope of the invention which is defined by the scope of the claims appended hereto.

CLAIMS

1. Belt (1) for use with an absorbent garment (2), said belt having two laterally spaced edges (3, 4) defining an area (5) of material therebetween for releasable attachment of hook element strips (6, 6', 6'') of hook and loop type fastening means, c h a r a c t e r i z e d in that said area (5) includes at least one defined portion (7), extending externally along a minor proportion of the length of the belt and across the major proportion of the width (z) of the belt, said defined portion(s) (7) being a non-attachment zone(s) to which said hook elements will not releasably attach.

2. Belt according to claim 1, c h a r a c t e r i z e d in that said defined portion (7) is located with its centreline substantially in line with the centreline (A-A) of the belt.

3. Belt according to claims 1 or 2, c h a r a c - t e r i z e d in that said defined portion (7) is formed by a piece of additional material attached to the main area (5) of the belt (1).

4. Belt according to claims 1 or 2, c h a r a c t e - r i z e d in that the belt material used for the non-attachment zone (7) extends along a major proportion of the belt-length, the area (5) of material for releasable attachment being constituted by two material strips (5', 5'') attached to the belt material used for the non-attachment zone (7) with a distance (y) between their inner edges so as to thus form the defined portion of non-attachment.

5. Belt according to any one of the preceding claims, c h a r a c t e r i z e d in that both sides (5, 12) of the belt are substantially identical such that the belt is reversible.

6. Belt according to claim 5, c h a r a c t e r i z e d in that one end of the belt is provided with a further piece of material (20) attached thereto, said piece of material having strips (21, 22) of hook elements attached thereto at either end thereof.

7. Belt according to any preceding claim, c h a r a c - t e r i z e d in that the surface of the belt (8) on the opposite side to the releasable attachment area (5) is made at least partially of an absorbent material.

8. Belt according to any preceding claim, c h a r a c - t e r i z e d in that at one end of the belt a hook element attachment strip (6, 10, 11, 21, 22) for securing the belt to itself around a user is provided, said strip being elongated with its larger dimension having a length of between 25 % and 75 % of the width (z) of the main area (5) of the belt, said larger dimension laying substantially in the width direction of the belt.

9. Belt according to any preceding claim, c h a r a c - t e r i z e d in that at least the area of releasable attachment (5) for receiving the hook element attachment strip(s) is made from a non-woven material.

10. Belt according to claim 9, c h a r a c t e - r i z e d in that both side surfaces (5, 8, 9) of the belt are made from non-woven material.

11. Belt according to any preceding claim, c h a r- a c t e r i z e d in that the length of the zone of non-

attachment (7) along the belt (1) lies between 5 and 70 cm, and preferably between 25 and 40 cm.

12. Combination of a belt according to any preceding claim, with an absorbent attachment part in the form of a chassis (2), said chassis having strips (6', 6'') of hook elements secured thereto at either end thereof, the inner margins of said strips spaced apart by a distance (y) such that the strips, when fitted correctly to the belt, lie outside each outer edge of the zone of non-attachment.

13. Combination according to claim 12, wherein the strips (6', 6'') lie on an elasticated portion of the chassis such that, when stretched, the inner margins of said strips can be spaced apart by a distance (y) greater than the length (x) of the zone of non-attachment.

14. Combination according to either of claims 12 or 13, wherein the releasable attachment area (5, 12) of the belt consists of a non-woven material and wherein the connection between the hook element strips (6', 6'') of the chassis to the belt (1) each have a peel strength of 0.1 - 2.0 Ncm^{-1}, preferably 0.2 - 0.8 Ncm^{-1}, and a shear strength greater than 1 Ncm^{-2}, preferably greater than 15 Ncm^{-2}.

15. Belt as claimed in claim 1 substantially as hereinbefore described with reference to and as illustrated in Figures 1, 2 and 4 of the accompanying drawings.

Patents Act 1977
Examiner's report to the Comptroller under Section 17
(The Search report) — 14 —

Application number
GB 9409283.0

Relevant Technical Fields

(i) UK Cl (Ed.M) A3V (V9B5A, V9B5C, V9B5X)

(ii) Int Cl (Ed.5) A41F 9/00, 9/02 A61F 5/44, 13/00, 13/62, 13/64, 13/66, 13/74, 13/76

Search Examiner
R J MIRAMS

Date of completion of Search
27 JUNE 1994

Databases (see below)
(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

(ii) ONLINE DATABASES: WPI, CLAIMS

Documents considered relevant following a search in respect of Claims :-
1 TO 15

Categories of documents

X: Document indicating lack of novelty or of inventive step.

Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.

A: Document indicating technological background and/or state of the art.

P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

&: Member of the same patent family; corresponding document.

Category	Identity of document and relevant passages	Relevant to claim(s)
X	US 4991234 A (GREENBERG) eg Figures 1 and 2	1

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).